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A Preliminary Discussion of Poliomyelitis in South Carolina in 1939

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The purpose of this paper is to give you a brief preliminary report of the recent epidemic of poliomyelitis in our State. A more detailed, cooperative study of the epidemic is being made by the United States Public Health Service and the State Board of Health.

South Carolina experienced the highest incidence of a disease popularly called acute anterior poliomyelitis in its recorded history in 1939, when 457 cases were recognized and diagnosed as such in 44 of the 46 counties of the State. This is at an attack-rate of 26.2 per 100,000 population compared with a normally expected incidence of 30 to 60 cases annually for an attack-rate of 2 to 4 per 100,000 population. There were 35 deaths in South Carolina in our epidemic immediately attributable to the poliomyelitis or a fatality of 7.9%. This 1939 epidemic is not the first one of this disease that has occurred in South Carolina. In 1910, 89 cases were reported to the State Board of Health, in 1916, 129 cases; and in 1925, 201 cases, 61 of which were in Spartanburg, Union, and York Counties.

Poliomyelitis is world-wide in distribution and has occurred in all countries and in all climates. In this country, cases are reported in every month of the year, and in South Carolina, there have been only eight months in the 13-year period, 1927-1939, in which no cases of this disease were reported. More cases occur in this State during the second half of the year than in the first half, and more cases are normally expected in the month of July than in any other single month. In 1927 and 1928 more than one-half of the reported cases occurred during the four colder months of these years.

The epidemic in South Carolina began in Charleston County about the middle of April. By the end of May the disease had occurred in 14 counties, but in only one above the fall line, Edgefield. By the end of June the disease had occurred in Oconee, Pickens, and northern Greenville counties, about two months after the beginning of the epidemic in Charleston in the middle of April. The disease occurred during the year in all counties except Georgetown and Lancaster. Charleston County experienced the severest epidemic incidence of the disease, an attack-rate of 177.5 per 100,000 population, a real epidemic. Dorchester County with an attack-rate of 79.2 per 100,000 population, Orangeburg with one of 54.8, and Berkeley with one of 54.1 experienced the next highest rates. Aiken, Greenville, Greenwood, and Sumter counties had more cases than would be expected to occur on the basis of their past experience. A larger number of counties reported cases of poliomyelitis in 1939 than is usually expected, and, therefore, contributed to the composite picture of the

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epidemic in the State, though many of them individually did not have an unusual number of cases. 171 of the 457 cases in the State were urban and 286 were rural. No city in the State except Charleston and to a much less extent Sumter was attacked at an unusual rate. 100 of the 179 cases in Charleston County were urban (city) cases but only 71 of the 278 cases in the State exclusive of Charleston County were urban.

When an epidemic of poliomyelitis is not in progress, many cases occur that are not seen and recognized until weeks or even months after their occurrence. The reported incidence and the actual incidence as determined by the dates of onset present ofttime entirely different pictures. According to dates of onsets some cases occurred in Charleston and a few neighboring counties during the first three months of the year; but the rise toward epidemic incidence began in Charleston City during the week ending April 15. The rise was rather sharp from that period until the peak of cases in Charleston the week ending May 6 when 17 cases occurred. About the time that the peak was reached in Charleston, an increased number of cases began to occur in the rest of the State that accounted for a continued rise in incidence in the State to a peak of 32 cases that occurred in two successive weeks ending June 10 and 17. An impression of several peaks and the prolonged decline following the highest peak are interesting features. The epidemic incidence lasted from the week ending April 15 until late September. Hence, we had an epidemic incidence of this disease spread over six months of spring and summer. There was no previously well-described southern epidemic on which to base an opinion, so it is not known whether this extended epidemic of the disease with respect to time distribution is the usual or the unusual for southern outbreaks. It is quite distinct from epidemics that occur in the northern parts of the country, where there is usually a rather sudden and sharp rise in incidence to a high peak followed by a rapid decline to a normal incidence. The extent in time of the epidemic incidence in these more northern states is from one and one-half to three months. The few southern epidemics about which we have some information begin much earlier than epidemics in the more northern states, and the South Carolina epidemic behaved typically in this respect.

In the South Carolina epidemic, the negro race was attacked at a slightly higher rate than the white race. Of the 447 cases in the State in which the race is known, 236 occurred in the white race for a rate of 24.9 per 100,000 population, and 211 cases occurred in the colored race for an attack-rate of 26.5 per 100,000 population. Expressed differently 52.8% of the cases were white and 47.2% were colored.

The age distribution in the South Carolina epidemic was more or less typical of most poliomyelitis outbreaks. 63.5% of the cases were in children under 5 years of age; 21.8% were between the ages of 5 annd 9; 11.8% were between 10 and 19 years of age; and only 2.9% were in individuals over 20 years of age. The age-group of 1 to 4 years was attacked at the highest rate of 147.5 per 100,000, compared with a rate of 99.1 for children under one year of age, and still lower rates as the age groups increased over 4 years. In Charleston County the largest number of cases occurred in children in the second year of life, while in the State, exclusive of Charleston, the largest number occurred in the third year of life.

The more prominent symptoms observed in our epidemics were headache, nausea, vomiting, constipation more frequently than diarrhea, stiffness of neck and back, and paralysis. Relatively few cases were diagnosed that did not have paralysis. 140 cases, 80% of the 179 cases in Charleston County had some degree of paralysis and 202 cases, 95% of those in the State exclusive of Charleston on whom we have the information were paralytic. The diagnosis of non-paralytic poliomyelitis was made in our epidemic on the following symptoms in the following order: some prodromal systemic symptoms of fever of varying degrees, followed by some type of gastro-intestinal disturbance, either nausea, vomiting, or both, accompanied by some disturbance in gastro-intestinal elimination, more frequently constipation, then the meningitic symptoms of stiffness of the neck and back, particularly of the lumbar spine. If these symptoms oc-

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curred in a different order, or if one or more of them was absent, the case was not called poliomyelitis.

It has been fairly generally recognized that the treatment of poliomyelitis is orthopedic from the date of diagnosis. This does not necessarily mean treatment by an orthopedist, but the kind of treatment that gives rest and support to weakened muscles. The earlier this type of treatment is begun, the better prognosis the patient has not only for life but for freedom from permanent defects. The cooperation between the general practitioners, othopedic surgeons, pediatricians, the United States and State health personnels made the early diagnosis and institution of early treatment possible in a large majority of the cases.

Almost all the acute cases in Charleston County were hospitalized and a great many of the cases in the State, exclusive of Charleston. However, during the epidemic, we were very definitely impressed with the grave need for better facilities for the hospitalization and isolation of acute contagious diseases, particularly poliomyelitis, in most of the hospitals. Very few of the hospitals in the State were equipped to adequately care for these cases. Apparently some of the hospitals suffered from the hysteria that was prevalent among the lay people and refused to accept any of these cases. Convalescent serum, sulfanilamide, sulfapyradine, Rosennow's antistreptococcus serum, and Vitamin B, have all been used with, to say the least, questionable beneficial effect to the present time.

A number of respirators were purchased by different agencies during the course of the epidemic and placed in hospitals in different sections of the State. These respirators will not, of course, save the lives of all individuals placed in them and are not expected to. However, in a poliomyelitis epidemic of any size there are always some cases that can be saved by the use of these machines. There were a number of lives saved by the use of these respirators during the epidemic in this State. It might be well to mention here also that these respirators can be used in a number of instances other than poliomyelitis.

In view of the high percentage of paralytic cases in the State 35 deaths, or 7.9% fatality, was very low. Also prognosis in a large number of the cases for complete recovery is very good. In fact, a fair percentage of the paralytic cases has already completely recovered in the short time of less than one year. However, it must be related that quite a large percentage of them has been left with permanent defects.

It is often heard, and in South Carolina last summer too, that we know very little or nothing about poliomyelitis. This is not by any means a true statement, because a great deal is known about the disease, probably more than is known about some of our much more common diseases. Unfortunately, the things that we do know about the disease are not of great benefit to us in our attempts to control an epidemic. Therefore, we are forced to recommend procedures on the basis of evidence that is available. There is a great deal of evidence to support the belief that poliomyelitis is a rather wide-spread infection with relatively few recognizable clinical cases. There is some evidence to support the belief that the disease is spread from person to person, probably by droplet infection. It is thought by a number of workers that the disease is spread chiefly among children by children. There is, however, some evidence that there must be at least a few adult carriers of the disease. On the belief that the disease is communicable and that it is probably spread among children chiefly, the State Board of Health recommended as its chief control measure the separation of children. Feeling that there might also be a few adult carriers of the disease, it was recommended that children of susceptible age not be brought into close contact with adults new in their experience. There may also be other means of transmission of this disease. Drs. Paul and Trask of Yale University have revived interest in the presence of virus in stools. They recovered the virus from some cases in South Carolina last year and also from sewage from the Calhoun Street sewer in Charleston. This sewer contains the sewage from Roper Hospital which had a large number of cases present through most of the summer. Even so, this recovery of the virus in this sewage may have implications not yet fully appreciated. The United States Public Health Service workers also revived interest in the discovery of labo-

ratory animals other than the monkey that might be used to advantage in the study of poliomyelitis. In the course of this research, they trapped a number of cotton rats in Charleston County. At least one strain of poliomyelitis virus has been carried through several generations of this rat, and we may have contributed in no small measure to the future study of poliomyelitis by the revived interest in this laboratory animal which can be secured cheaply and in large numbers.

One of the difficulties encountered by the State Board of Health in this epidemic was the handling of the mass hysteria that swept the State. This in many communities was more difficult to handle than the poliomyelitis that was occurring or that was thought to be impending.

SUMMARY

1. S. C. had a definite epidemic of poliomyelitis in 1939 that involved 44 counties, though only seven to any unusual extent.

2. The white and negro races were apparently equally susceptible.

3. 80% of Charleston County cases and 95% of the rest of State cases were paralytic.

4. There were 35 deaths or only 7.9% fatality.

5. The epidemic incidence was extended over a six months' period, April 15 to late September.

6. Recovery of the susceptible cotton rat and of virus from sewage were contributions S. C. made to poliomyelitis knowledge during the epidemic.

7. Three hundred and seventy-five cases were studied in detail.

DISCUSSION

DR. W. M. BEACH (Charleston): Mr. Chairman: The essayist has given us an excellent resume' of the 1939 epidemic of poliomyelitis, and has so thoroughly covered the field that there is little that I can add. However, it may be in order to stress some of the pertinent facts, which continue to be "Sand in our eyes." Do you know that after more than thirty years of research in the laboratory and in the field, knowledge that is essential for the prevention, cure, or control of poliomyelitis is still unknown. Our public health officers have not been able to steep themselves in any science whereby they can guard children against this disease. In spite of the claims of certain men of medicine, physicians still realize that there is no serum or medicine to check or cure the dreaded malady in its acute stage, or to prevent its subsequent maiming or fatal outcome. No one knows whether the child stricken with poliomyelitis contracts its disease from another sick or healthy person. It has been stated that during an epidemic the virus of infantile paralysis can be found in the stools of healthy children in a high percentage of those examined. The greatest advance in research during 1939, was made by Dr. Charles Armstrong. He has been able to infect the eastern cotton rat, Sigmodon Hispidus hispidus, with the virus of poliomyelitis. He produced in this rat a typical type of infantile paralysis. Now, with this knowledge, our research workers in the laboratory and in the field, may soon find how to prevent and how to cure this disease.

It may be of interest to briefly summarize the cases admitted to Roper Hospital during the epidemic of 1939. There were 177 cases; eighty-three white and ninety-four colored. Of this number, fifteen died; nine white and six colored. The mortality rate was 8.4% The fatality rate was 10.8% in the white and 6.1% in the colored. It was necessary to place thirteen of these critically ill children in the respirators. Nine were white and four colored. Seven of these children died, six white and one colored. Therefore it is quite evident that the white children were more severely affected than the colored children during this epidemic.

DR. GEORGE H. ZERBST (Charleston): Mr. President and Gentlemen: In the study of poliomyelitis one of the things that strikes us most forcibly is the periodicity of it. In 1925 there were sixty-one cases in Spartanburg, Union and York Counties. During the epidemic of 1939 these counties had only sixteen cases. Does that mean that the susceptible children of these counties were stricken in 1925 leaving the greater number immunized?

In Sumter County we had twenty cases of poliomyelitis, six white and fourteen colored. On the basis of colored and white population that put the disease evenly divided between the races in proportion to population. There were six urban cases and fourteen rural, also a fifty-fifty division. Fifty per cent of the cases in the city and county of Sumter were under six years of age.

One of the things that strikes all of us most forcibly is our failure in tracing back and finding contacts in poliomyelitis cases. Numerous cases that I have had to investigate were in isolated areas. These two and three year old children had not been to town in months. It was the only case in the neighborhood. It was definitely poliomyelitis. Try and prove that contact. Does that mean that a healthy individual, or healthy adult can carry the virus and spread it to the susceptible children, or does it mean that there is an insect or animal vector there?

We know and have proven in our own city that

you can find virus in sewage. Dr. Link, Stockholm, found it in drinking water, separated it, injected monkeys with it and produced typical monkey poliomyelitis. The mode of entrance of this virus into the human body is still unknown. We know that by taking a monkey, that is one particular species of monkey, and by instilling virus into the nasal passage that you can produce something that is a great deal like poliomyelitis, but is it poliomyelitis? Put the diseased monkey in a cage with healthy monkeys and the disease does not spread to the healthy monkeys. Lately they have discovered in Australia another species, Macrus Iris, this species can be infected by merely swabbing their throat with the virus. It is due to the fact that there are different strains of virus using different routes of invasion, or is it simply a variation on the susceptibility of the individual? There is much we have yet to learn about how this disease is carried, and the avenue of entrance, and until we do, our hands are more or less tied in preventing it.

DR. R. M. POLLITZER (Greenville): Ladies and Gentlemen: I would not for one minute have you believe that we know everything about poliomyelitis. The speakers have told you that much remains to be learned. On the other hand, I think it is just as much an error to convey the impression to our patrons and the laity in general that the medical profession knows absolutely nothing about poliomyelitis. From time to time I am told, "My Doctor says the medical profession knows absolutely nothing about poliomyelitis." I think it is amazing how much work has been done and how much progress has been made in the discarding of some of the things we thought we were sure about. As has been said, until recently we felt sure one could only get polio through the nasal mucosa. We know now it is also found in the intestinal tract. We thought that the monkey was the only animal that could be infected, from study in the laboratory, but from recent laboratory studies it has been proved that the rat can be inoculated. I am confident that we are on the verge of important discoveries. We are in a better laboratory and clinical position. It is true the epidemiologists are not able to trace the spread of the disease even though they have tried hard enough. Therapeutically, we are making some advances. A few years ago, as was very well shown by statistics, we were confident that blood or serum injections would cure and prevent the disease. Two groups were working on the prevention of poliomyelitis and it was thought that they had succeeded. We know now that one method was worthless; the other was dangerous, so both have been discarded. Dr. McKhann, of Harvard, feels quite sure that within a year a group working in Boston will have some startling announcements to make. I don't for one moment, feel hopeless about "polio." Just think how tremendously varying it is in its clinical types and severity. I am sure much ground has been covered and we are on our way and we should not at any time give way to defeatism.

DR. J. A. HAYNE (Columbia): I only want to very briefly bring up one subject that has not been mentioned by the essayist or those speaking, namely, the fact that we have poliomyelitis without paralysis. That, to me, is the reason it occurs in isolated communities. I think if we should be so unfortunate as to have another epidemic we would check on the sickness of children in the communities in which the polio cases occur. In other words, if we have an increased amount of sickness among children between two and five years of age—vomiting, diarrhea and fever without cause, we should make note of that fact because it is very probable that at least 20 or 30 per cent of the people develop the disease with those symptoms, except those I mentioned that are not paralyzed, consequently don't enter into the statistics of the epidemic, but in talking to a great many physicians over the State I find that there was an unusual amount of fever, vomiting and intestinal upsets at that season and during the time that the epidemic was prevalent. I think we will have to look into that, and with the cotton rat being used as an animal that can be tested in laboratories, we can test out those children that are sick that have nausea, vomiting, and other symptoms of that sort, and possibly we may find that they have infantile paralysis although they do not develop paralysis.

DR. WILLIAM WESTON, JR. (Columbia): I promise not to take long. I was somewhat interested, mainly because I was associated with the State Board of Health this past summer in this work and at this time I would like to commend the State Board of Health officers for keeping this epidemic almost locally in Charleston, not that I approve of it being anywhere. I wanted to say something about the research work. Dr. Aycock, of Harvard, has shown that there is a definite autarcesis, that is, it has familial tendencies. The estrogenic factor has proved a barrier. When the estrogen is given to monkeys, they are less likely to develop poliomyelitis than those who have not received that hormone. Paul and Trask, of Yale, have developed the disease from polluted sewage in monkeys in Charleston. Jungeblut showed that Vitamin B-1 and Vitamin B complex had no effect, while Vitamin C did act as a barrier in monkeys.

Something was said in regard to the age distribution. Poliomyelitis is like a great many other diseases, particularly measles and diphtheria, in that pre-school children are the ones most likely to be infected, and it is true with poliomyelitis.

The lumbar puncture, I think, is necessary. It has been shown by Waddell and others that where there are a few cells in the spinal fluid that the paralysis is not apt to occur, but it does relieve pressure by removing some of the fluid and is beneficial to the patient.

The hospitalization is a very important subject and whenever possible, certain hospitals should be designated by the State Health Officers in any district in which it is necessary.

This brings us up to the subject of fear, for which I think doctors are largely to blame. We ought to keep our heads up and our eyes open and get our feet on the ground and not try to run away from these kinds of infections. We are certainly the ones to combat them.

Thank you. (Applause).

DR. McDANIEL: I won't say anything further, except to thank all these gentlemen for their discussion of my short paper. I feel like they contributed more to your interest in regard to poliomyelitis than the paper itself.

I might say that the epidemic did develop a healthy state among the physicians in South Carolina, and got a great many people to thinking about it. With a great many people thinking very seriously about the disease, somebody should think of something that will add something to our knowledge.

The Use of Vitamin K in the Newborn

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Until recently, hemorrhagic disease of the newborn has been a rather vague entity. It was easily recognized and usually easily cured by blood transfusion if the blood could be given before the infant bled to death. With a series of important discoveries, the cause and treatment of hemorrhagic disease of the newborn have been placed on a definite basis.

As early as 1912, Whipple (1) from observations at autopsy on two infants with melena, stated that death was due to hemorrhage resulting from a low prothrombin content of the blood. In 1929 Dam (1) first suspected the presence of an antihemorrhagic factor when chicks fed a fat free diet developed hemorrhagic manifestations. Since that time various methods of quantitative estimation of prothrombin content have been worked out by numerous investigators. (Quick, Stanley-Brown and Bancroft, Brinkhaus, Smith and Warner, Owen, Hoffman, Ziffren and Smith). The investigation showed a drop in prothrombin content between the second and sixth days of life. The association between Vitamin K and blood prothrombin was proven by several investigators. Waddell, Guerry, Bray, and Kelley announced the shortening of clotting time when vitamin K was administered to newborn infants. (2) Others tried to prove that hypoprothombinemia in the newborn was due to defective absorption from the gastrointestinal tract. Still others (3) showed that administration of vitamin K to mothers late in pregnancy caused an appreciable increase (68-130%) in prothrombin content of the newborn's blood over that of normal controls. From these facts, it is obvious that what was roughly known as hemorrhagic disease of the newborn can now be classified as hypoprothrombinemia and effectively prevented as well as treated with Vitamin K.

Hemorrhagic disease of the newborn is characterized by bleeding from nose, mouth, eyes, intestinal tract and urethra. Like most other diseases there are different degrees of severity. Some cases will cease to hemorrhage and others will rapidly become exsanguinated unless therapy is instituted early. Bleeding and coagulation times are variable, but prolonged. Lately, the most important finding, a low prothrombin content, has been proven. It is generally conceded that prothrombin is formed chiefly in the liver in the presence of sufficient quantities of Vitamin K. Salomonsen and Nygaard (4) have shown that a delay in the growth of intestinal flora resulted in marked hypoprothombinemia. Some investigators (5) have even been able to prove to their own satisfaction that an early diet of boiled cow's milk may prevent low prothrombin. The cause of hemorrhagic disease of the newborn is a low prothrombin content of the blood.

Vitamin K. derives its name from the Danish word Koagulations. (6) It is present in alfalfa as well as fermented fish meal. The vitamin has been studied and its chemical nature determined. (6) The original vitamin K appeared dissolved in corn oil, but now it

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is obtainable in tablet, liquid, capsule form or ampoule for subcutaneous administration. The only forms that are now available locally are tablet, capsule, and liquid, not for subcutaneous injection.

What then are the indications for the administration of Vitamin K? The most definite indication of course, is when an infant shows evidence of hemorrhagic disease of the newborn or a better term, hypoprothombinemia. Secondly, all premature infants should receive it routinely because it has been shown that the prothrombin content of a premature infant is lower than that of a normal infant. (1) Thirdly, when there has been a prolonged or difficult labor it is safer to administer Vitamin K simply as a prophylactic measure (7). Fourthly, when circumcision is contemplated, before the seventh or eighth day. (7) Those seem to be the most important reasons for giving Vitamin K, although it must be remembered that it is entirely non-toxic in ordinary dosage and so could be given to every newborn. As a matter of fact, obstetricians and general practitioners could give Vitamin K to pregnant women late in pregnancy and accomplish the same results but with larger doses. Vitamin K has become another specific prophylactic medicine as well as cure.

Case report:

W. R. S. Baby boy, 3 days old, born at home of mother with three other normal living children. Delivery normal.

Brought to hospital because of nose bleed and passage of blood from rectum as well as mouth for two days.

P. E.: Temp. 103 Hemorrhage from mouth and rectum. Hemorrhagic area on palate. Jaundiced, hands and feet peeling.

Course: No fever after 6 hrs. No hemorrhage 4 hours after administration of first Vitamin K capsule. (Given by dissolving capsule in warm milk) Hbo. 96% Rbc. 4,800,000, Wbc. 13,500, P. 54%, L. 42%, M. 4%. In hospital 6 days gained 15 ounces.

Comment: This is a typical case of hemorrhagic disease of the new born or hypoprothrombinemia with the typical response to Vitamin K therapy. This patient happened to be jaundiced but that is simply coincidental. Vitamin K shows just as sudden response when no jaundice is present.

SUMMARY

1. A short history of the discovery of the cause and treatment of hemorrhagic disease of the newborn is given.

2. The indications for the use of vitamin K are mentioned briefly.

3. Hypoprothrombinemia is a more exact name and may be prevented as easily as it may be cured.

4. A case report of a characteristic case is given.

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Intravenous Therapy in the Treatment of Acute Heart Failure and Cardiac Asthma

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In severe attacks of acute heart failure, cardiac asthma, and pulmonary edema it is my belief that on the method of management frequently depends the life or death of the patient. Such a situation is no place for a therapeutic nihilist. It seems fair to say that one should spend as much or more time at the bed side of one of these patients as the obstetrician does in planning and executing a difficult delivery. In fact if one is to have most satisfactory results, constant attention at the bed side is necessary. Furthermore, treatment should be started at the earliest possible moment. While it is true that most of these cases have only a short life ahead of them, all of them are in desperate need of relief from an agonizing experience and seldom does one have the opportunity to bring about such dramatic improvement. The feeling of gratification to the physician and the appreciation of the family in a case successfully handled is worth a great deal of effort.

Since therapeutic measures must be accomplished rapidly in order to be effective, intravenous medication is almost invariably necessary. Though several of the intravenous procedures to be mentioned are hazardous, it must be remembered that the situation involved is a desperate one. It is the purpose of this discussion to present a few of the most important ones which have been found in my experience most effective in bringing comfort and recovery, even though temporary, to the patient with as little hazard as possible.

The first procedure is obviously one to produce comfort as quickly as possible and morphine is undoubtedly the substance most likely to accomplish this. Ordinarily this is administered at once hypodermically though with the circulation considerably impaired it is likely that its effect is delayed and the agony prolonged. Therefore it might be feasible, in some cases, to give a small quantity (1/8 to 1/6 grain) intravenously at once. Since this is now supplied in ampoules it is quite convenient and simple. The effect is almost immediate and if further morphine is needed this may be determined without delay. Of course, oxygen will be commenced immediately if available and even though the patient is not in the hospital many physicians are now carrying a small tank in the car with them.

If there is pronounced pulmonary edema or cardiac asthma, the next procedure which comes to mind is the administration of concentrated glucose solution. It may not be given immediately but sooner or later during almost any severe case its need is considered. Here a delicate question arises. We know that a moderate quantity of this substance will often clear a pulmonary edema almost like magic and will probably have a very favorable effect in cardiac asthma. At the same time there is a possibility that the heart will lose further ground under the strain of the added fluid not only introduced into the blood stream but drawn into the circulation by osmotic action. For this reason one hesitates to give any reasonable quantity without considerable apprehension. It has recently been my custom to give a small quantity of (20 cc. of 25%[2]) and a subsequent quantity by the intravenous drip method at a rate of about 50 to 60 drops per minute. The amount given subsequently will depend on the patient's response and time will usually be available to determine this.

This method is taken from the surgeon's armamentarium and is not, so far as I know, customarily used in cases of the type under discussion. First suggested by Dr. Matas[3] in 1924, it has been used widely in the treatment of surgical patients where prolonged administration of fluid is desired. At the time that Dr. Matas presented this, he had the following to say about it:

"The advantage of the constant intravenous

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drip lies in the steady stimulation with an istonic oxygen and pablum carrying fluid which not only replaces lost fluid for an indefinite time but stimulates and nourishes the heart muscles and brain centers continuously without overcrowding the heart."

As soon as this apparatus is set up, attention can then be given to other therapy which might be needed, and though this is an emergency, several of the substances to be used should not be injected too rapidly. After the apparatus is set up, other substances may be injected into the tube of the intravenous set and thus are given at a speed slow enough to prevent untoward symptoms. Often venesection is indicated which in itself has a remarkable and dramatic effect in bringing improvement. This may be started immediately after the intravenous drip has been set up but it is usually feasible to watch the progress of the patient for a while first. If there is any loss of ground or lack of improvement, three hundred to five hundred cc. of blood is withdrawn. The fact that the patient is not in the hospital is not considered a difficulty because nowadays most physicians are prepared to give glucose intravenously far out in the country. The features favoring the use of glucose are as follows:

(1) By osmotic action the hypertonic solution brings fluid from the lungs into circulation where it can be excreted.

(2) It offers assistance in myocardial nutrition[4] and acts as a fuel. It is well known that coronary and myocardial function carries on better when the blood sugar is at a higher level.

(3) It has been shown in experimental work that the coronary flow is improved from 10[1] to 90%[5].

(4) It offers readily available nutrition for the body, and at a time like this anything given by mouth is probably not feasible.

(5) It furnishes fluid to the patient who is often vomiting and in great need of it. Many of these cases have hypertensive disease with kidney impairment and it is believed that it would be hazardous to deprive them of fluid.

(6) In some cases of acute heart failure such as that following acute coronary thrombosis, shock[6] may also be a very serious feature and glucose might be of great benefit to the patient if given slowly. It is my custom to give glucose in sterile water rather than saline because it is then excreted much more quickly.

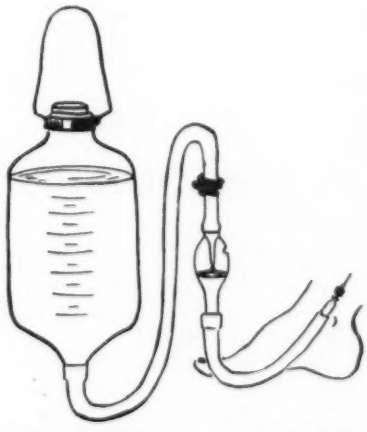
The factors considered unfavorable when glucose is given by the usual intravenous method are:

(1) The rapid increase in blood volume[7] through osmotic action adds strain to a weakened myocardium. Deaths[8] believed due to this have been reported, and if any substance is given rapidly there is danger of speed shock, as pointed out by Hirschfield[9] and others in 1931. They found that the more hypertonic the solution the more possibility of speed shock to develop. It is estimated that 50 cc. of 50% dextrose solution injected into a normal person would increase the blood volume about 200 cc.

(2) There is some increase in venous[10] pressure[13] during this procedure — the very thing we are trying to avoid.

(3) It has been shown experimentally that in high concentration glucose or sucrose may produce some harmful effect in the lungs[11] and there is the possibility that if the kidneys are already impaired there might be some harmful or irritating effect from these high concentrations. (Sucrose only).

(4) It has been shown that anginal pain can be produced[12] by its administration by the ordi-



Method recommended in cases of pulmonary edema probably so severe they would not recover by simpler means. Simultaneous withdrawal of blood is often necessary.

nary method in cases subject to this syndrome and untoward symptoms have been noted by the writer in cases without known heart disease such as pain in the chest, shortness of breath, sitting up to breathe.

With the features considered above it is believed that by the method described, the safest and most satisfactory method of administering glucose is by the intravenous drip method and that few harmful effects will be experienced with it.

In heart failure with severe cardiac asthma and if previous measures haven't shown improvement, Aminophyllin is usually given in doses of 3¾ grains and is supplied in ampoules for intravenous injection. It may be more beneficial than caffeine or adrenalin in the treatment of paroxysmal dyspnoea but if the situation is becoming more desperate either caffeine sodium benzoate, grs. 7½ to 15, or adrenalin, m. V to X, should be given intravenously, or both.

Usually what should be the last substance coming up for immediate consideration is digitalis. Practically everyone is agreed that it is unsuitable for use in cardiac emergencies as its effect is too slow to be of any help. Its use may divert attention from more effective measures and if it is given one is then deprived of the opportunity of using Ouabaine or Strophanthus. Of course, one should never use a small quantity of digitalis unthinkingly and before planning the full outline of treatment. Most of the cases I have seen have either been getting a small quantity of digitalis or have been given some shortly before hand. In this situation further digitalis intravenously might be considered.

When no digitalis has previously been given, Ouabaine comes up for consideration. This interesting and powerful substance is derived from an African arrow poison. Its possible effect on heart failure was first considered about 75 years ago when autopsies on persons killed by this poison disclosed that the heart had died in systole with what was evidently a very powerful tonic effect, and that dilatation might well be combated with such a substance. Subsequent study did show that it possesses an effect similar to digitalis though, of course, much more rapid. An injection of the full therapeutic dose, 1/240 gr. intravenously, is probably equal to the effect which would be produced by 20 grains of digitalis. The safest and most satisfactory dose initially is ½ ampoule or 1/480 gr. Prof. Armaud of Paris first made it in stable form and of uniform potency in 1906. That bearing his name is perhaps one of the most reliable in use today. It is also furnished in specially prepared ampoules for intramuscular use in doses of 1/120 grain. It is believed to improve the tone of the heart muscle better than digitalis and after the first dose of Ouabaine, digitalis may be administered almost immediately since the Ouabaine effect will be disappearing as the digitalis effect takes hold. In chronic cases of heart failure with prolonged digitalization in which there is continued decline of the patient the situation has become acute when one realizes that all previous measures have been entirely inadequate. In such cases if a rest of three days from digitalis is possible, a dose of Ouabaine has been found to produce a remarkable improvement at times. Its use with aminophyllin has been found by some writers to enhance its value and render it less hazardous.

Unfavorable factors concerning its administration are:

(1) That its use is precluded where digitalis has previously been used.

(2) A very small number of cases may be subject to strophanthin death which may follow in a few minutes to half an hour even if great caution is observed. Cases known to have cardiac syncope and those known to have atrioventricular or intraventricular block are of course the ones most unsatisfactory for its administration.

(3) It should not be used in coronary thrombosis.

Adrenalin is carefully avoided by almost everyone until the last possible moment in the treatment of heart failure. I doubt if so much hesitancy is warranted even where coronary thrombosis has taken place. Experimental study has shown that adrenalin does not impede the coronary flow to any extent and its major effect concerns the peripheral circulation. If in addition to acute heart failure there is marked prostration and vasomotor collapse,

I believe this drug should be used somewhat sooner than it ordinarily is.

Caffiene sodium benzoate has a direct action on the myocardium as well as centrally. When an instantaneous stimulating effect is needed this is probably the most satisfactory in heart failure and collapse. Since it is related to aminophyllin it is probably best not to give both at the same time. I have done so however without harmful effect.

Coramine has very little if any direct action on the heart but has more effect on stimulating the brain centers and on the peripheral circulation. The same applies to Metrazol (Cardiozol). Both have practically no contraindications and no harm can be done in giving them. They certainly do not impair the coronary circulation and only very large doses are depressant. I have done electrocardiagrams on persons before and after convulsions produced by Metrazol and there were no important changes.

Quinidine intravenously[14] is indicated in very rare instances of circulatory collapse with ventricular tachycardia. In no other instance can I think of any reason for the administration of quinidine intravenously. When it is given it is best dissolved in 5% glucose solution in fairly large doses. Though ventricular tachycardia is an unusual problem to meet, practically all cases can take the quinidine by mouth. Occasionally it happens that the person is in such serious collapse that oral administration would be impossible, and there are cases on record where quinidine intravenously was life saving.

Mercurial diuretics have a very beneficial effect. Especially in cases which are already edematous. Their effect, however, may be too slow to be of great service in emergencies.

Naturally, there are certain cases which will not respond to any type of therapy. In this group, postmortem examination will almost always disclose pathological changes which obviously would make recovery even temporarily impossible. If a person has any chance at all, it is my belief that proper management will bring recovery to many of those so desperately ill that they have no recollection of the illness subsequeqntly.

SUMMARY

The advantages and disadvantages of the intravenous administration of glucose are discussed. Consideration of the use of other substances, such as morphine, adrenalin, caffeine sodium benzoate, Ouabaine, Coramine, Metrazol and mercurial diuretics is presented.

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DISCUSSION

DR. ROBERT WILSON, JR. (Charleston): Mr. President and Members of the Association: Dr. Quattlebaum has given us a very excellent paper on the important subject of the treatment of these patients. Cardiac asthma, as he says, is truly a medical emergency, and Dr. Quattlebaum is quite correct in staying with patients constantly and giving them the constant attention they need. In this case the physician can do a great deal. In cardiac asthma the therapeutic nihilist has no place.

The comfort and recovery of the patient depend upon what the physician does and how quickly he does it. While it is true that patients who have attacks of cardiac asthma have damaged hearts and the eventual prognosis is poor, we can't predict how long the patient is going to live, and we should not give up hope during the immediate attack. I had one patient not so long ago with a terrific attack of cardiac asthma. The patient lived fifteen months. In his final illness he had no circulatory disturbance of any appreciable degree.

In cardiac asthma there is failure of the left side of the heart. There is a vicious circle between the failure of the heart and the circulation. A good many factors are apt to precipitate the attack. One is almost always an increased blood volume, and this in turn inhibits the action of the heart and prevents it from coming back and giving the patient adequate circulation. For that reason, I, myself, doubt very much the efficacy of intravenous glucose in the average case. I have not used it in cardiac asthma because of the mechanical factors operative in the case. I think it would tend to do more harm than good. In the treatment of these cases, our therapeutic efforts should be directed toward breaking this vicious circle. The most important thing is morphin. As a rule, you don't have time to get the patient to the hospital unless he comes in with an attack. Treatment must be done in the home. The family is upset. The patients sees that. He becomes more worried and the most important thing and the first thing is morphin and atrophin. Morphin alone will often bring the patient with a fairly mild attack out of it. If it does not, it is because the circulation is impeded with too great a blood volume. Our effort should be directed toward reduction of this, and to do a venesection or put tourniquets on all four extremities is an excellent procedure. It takes the blood out of general circulation and allows the heart to pick up.

One of the drugs Dr. Quattlebaum mentioned and did not have time to go into is very useful and that is salyrgan. It does not give immediate relief to the patient, but after the patient has come out of the original acute attack, its diuretic action enables the body to get rid of fluid, and allows the heart to pick up. I think that the other drugs Dr. Quattlebaum mentioned all have a place in the treatment of these attacks, and the only one that I would have any hesitancy at all about using would be intravenous glucose. I enjoyed the paper very much, and think he has made a decided contribution.

In conclusion, I should like to say that I think there is a group of selected cases that can be advantageously treated by the intravenous method. In general it should be reserved and not used routinely. (Applause).

DR. O. B. MAYER (Columbia): It is needless to say that we have heard a very splendid and timely paper on a most important subject. I know of no medical crises that needs more thought.

In approaching the management of acute cardiac failure first determine the kind of catastrophe, second what drug is peculiarly indicated, and third by what route the drug is most efficacious. The scope of the paper you have just heard did not include diagnosis but certain drugs and their intravenous administration was discussed.

What are the indications for intravenous medication? Among them may be mentioned: First, any condition where extreme crisis is present where the usual 15 to 30 minutes for hypodermic medication to take affect cannot be awaited. Second in the presence of general edema where an unusually long time would take place for absorption. Third, in peripheral circulatory failure. Fourth, in extreme pain.

Among the drugs that Dr. Quattlebaum mentioned for use intravenously were: First morphin. Ordinarily morphin is given hypodermically with good effect. Again the intramuscular route is satisfactory. Only in rare instances have I felt the necessity of giving it intravenously. When it is given intravenously, the dosage is reduced, particularly in the aged, because of depression of the respiratory center. I feel that morphin in general is one of the most important drugs to meet these conditions and should be given in large doses. Atropin may also be used intravenously. Digitalis ordinarily is not considered an emergency drug because it acts too slowly. However, it should be used as a follow-up drug. For emergency, stropanthia, of the same family of drugs as digitalis, is a powerful acting drug. It should not be used after digitalization. When used give slowly and well diluted. I have not seen any dramatic affects with aminophyllin. I use it and feel that there is no particular contraindication to it if given slowly and well diluted.

Glucose I have not used as the author described but I am sure there is good ground for its use. The author used it in acute cardiac failure in pulmonary edema and I can see the logic. It reduces fluid in the lung tissue and affords immediate nourishment for the heart muscle. In giving glucose intravenously keep in mind the indication for which it is given. If given to increase the blood volume, sometimes hypertonic or isotonic solution is used. In acute peripheral circulatory failure a hypertonic solution may be the one of choice. To maintain blood volume the intravenous drip method is very valuable. Use glucose with some caution and particularly do not make the mistake of giving it to diabetic patients unknowingly.

DR. F. E. ZEMP (Columbia): I have only a few words to say about Dr. Quattlebaum's paper. Although I am young in years, I am more impressed with how little medication you can use in some of the heart conditions. For instance, in coronary thrombosis we look upon the patient as being in shock, just as if he had had a cerebral hemorrhage

or a gun shot wound in the abdomen or an accident. There is a profound disturbance of the adrenal sympathetic system which requires a fairly large dose of morphin. In eleven out of around forty cases of coronary thrombosis, one hypodermic of a half grain of morphin was all the patient received. The only other medication which one or two patients received was theobromine.

In regard to hypertonic intravenous therapy, there has been a great deal of work done on this by Boyd and Scherf of New York and they have concluded that glucose has very little or no place in coronary thrombosis. I seldom use it and then only 20 c. c. of a 50% solution once or twice daily.

There is one old drug the Doctor did not mention in pulmonary edema which is still of use, atropine sulphate. In three cases with the typical bloody froth from the mouth and rattling in the chest, complete relief was obtained with atropin sulphate alone. The total amount given in 24 hours was one sixteenth of a grain, the greater part of which was given in the first four hours. I learned this from Dr. McRae, who demonstrated a case which I shall never forget in which the patient received one sixth of a grain of atropin in 24 hours and made a perfect recovery. Although we have a lot of weapons to use in heart disease we should use them with care and with very conservative judgment.

I enjoyed Dr. Quattlebaum's paper very much.

DR. J. H. CANNON (Charleston): The subject of the treatment of acute left failure the Doctor discussed so ably seems to me to bring up a good many points for consideration. The very fact that there are so many drugs used and recoveries attributed to all of these measures, indicates to me that perhaps a lot of these patients would recover anyway even if they didn't have a physician. Just let them alone. There is strain on the left heart with the resulting pulmonary engorgement. It yields probably more spectacularly from the venous section than almost any other one thing. It seems to support our theory that the engorgement is the factor behind the symptom. The relief that these patients get from morphin with the relaxation that comes with alleviating fear and digitalis to remove the discomfort again seems to support the theory that if they had nothing but that one thing which did nothing more than relieve fear and apprehension, it would relax them and relieve them. Tension is probably a large factor. Anyway morphin does seem to relieve patients. There probably are other ways. It seems that that is probably one of the main reasons. There are some drugs which some men seem to get so much relief from and get enthusiastic over and then after a while some equally reliable man comes along saying that he used these things without very much success and uniformly they all report good results from morphin and venous sections or tourniquets which take off the load, which seems rational and seems to emphasize that that is the important thing that we are trying to accomplish in this paper.

I recall one gentleman in the early 50s when I first saw him who had, I think, the most severe edema of the lungs I have ever seen and the amount of froth and fluid expectorated before he was relieved must have been a quart very conservatively. That man had repeated light attacks after that but immediately afterward I left morphin or atropin for him to take on evidence of the symptoms returning, and he never had a severe attack after that and lived for over seven years. He finally died suddenly in bed probably from some of the causes that resulted, but death resulting from heart conditions is speculative and that may not be exactly right after all.

I should like for Dr. Quattlebaum, since he has given it more study, if he will, in his closing discussion discuss the rationality of glucose. (Applause)

DR. A. F. BURNSIDE (Columbia): I know very little about coronary thrombosis but I do know the surgical mortality in mesenteric thrombosis has been 75 to 80 per cent.

In the last year there has been an article published on the treatment of mesenteric thrombosis with resection and giving heparin a non-coagulating drug, given intravenously, and I am wondering if it would have some effect, too, on coronary thrombosis.

DR. W. L. PRESSLY (Due West): I would just like to express my appreciation of Dr. Quattlebaum's paper. He has given us a wonderful appraisal of a need that we have to meet in emergencies. I don't expect there is a man in the audience that won't be called upon within the next few months to meet this emergency.

I was glad to have him make some reference to morphin being given intravenously. I have been a little gun-shy of it but I do realize that the fifteen or twenty minutes that you are waiting with everybody looking at you and saying, "Can't you do something, Doctor, to relieve the pain?" when you have to give morphin subcutaneously, they are long minutes. I shall take hope and use a little intravenously with a great deal of care.

Not over three or four days ago a man came to my office and wanted a dose of morphin. I told him I'd give it to him if he'd go out. I gave him a grain. He pulled out an old medicine dropper and needle and dissolved it and he had a dirty neck tie which he tied around his arm and popped the needle in the vein. His expression changed immediately. His face brightened within a minute. I took courage about injecting morphin in the vein.

DR. GEORGE T. McCUTCHEN (Columbia): What I have to say is a twice told tale to many of you. The intravenous drip in a dangerously ill patient frequently is a life saver and the fact that it can be given over a long period of time without

any overloading of the heart and without continuously sticking the veins are most distinct advantages. One or two features of the apparatus shown are niceties in the development.

(Slide) This is set up with the bottle above and with a Murphy bulb with a hole in it. With the hole open, you get hydrostatic pressure from the small bulb and from the column of water from the hole on down to the needle and if you left this hole open almost any pressure in the vein would be sufficient to cause a clot in the needle. As soon as the system is set up we have made a practice of putting a piece of rubber glove over the hole and strapping that down with adhesive. This makes the system air tight and then the solution in the tube is under the hydrostatic pressure from the large column of water in the bottle.

Another feature that is very simple but not universally used in an ordinary right angle splint to put the leg in. This allows you to turn the patient over in bed and to make any manipuations that you want from the leg up without disturbing the position of the needle in the vein. You do not have to be particularly careful about it once the leg is immobilized in the splint. Another thing is the three way stop cock at the needle. This allows you to cleanse the needle. This should be done about every six hours. The adhesive should be taken off the hole in the bulb and solution run through the needle. If this is not done, blood will accumulate at the point of the needle and serve to block it off.

This apparatus in a surgically sick patient is invaluable. I have upon occasion kept it on for two weeks or more. It is a relatively simple matter to keep it going with the use of the needle cleansing every six hours. Blood can be put into the bottle if the patient happens to need it.

DR. QUATTLEBAUM: I should like to thank everyone who discussed my paper. I appreciate it very much.

I shall try to answer a few of the questions. There is not very much for me to say about morphin. There is some hesitancy about using it intravenously. I believe that I first saw it used in this manner at the Mayo Clinic where its intravenous use was routine for bronchoscopic examinations and similar procedures. They seemed never to have the slightest trouble with it. Of course, one should be careful in using it intravenously especially where the respiration is already very slow. In regard to atropin, I left that out on purpose. Though it is a matter of argument whether it is a fine thing to use or not, I personally do not use it for several reasons. (One) I have a distinct feeling, for one thing, that it counteracts the influence of digitalis which will be used subsequently. (Two) If you have taken a dose large enough to really dry up the secretions it makes you feel quite terrible. However, there are plenty of good men who like to use it.

In regard to several of these things—I should like to talk about the particular feature of using them in the home—lots of physicians nowadays give glucose intravenously fifteen miles from any hospital. The drip set makes it more convenient rather than less so to give it in the home. Oxygen is also carried in a small tank in the car where it is ready for use at any time.

Just a word or two about my former teacher and a man for whom I have the highest regard, Dr. Cannon, for he pained me very deeply today. To me he has joined the group of nihilists. While a case might occasionally get well under almost any situation, this discussion is considering only those desperately ill and many of them will die unless given every opportunity to get well. If Dr. Cannon would modify his statement to say that one might give only morphin provided one sits at the bed side for the rest of the night, I will agree with him. Most likely then the necessity for something else will be obvious before the night is over.

When one of these patients who has recovered by your careful attention, tells you later that you have saved his life, you won't have to laugh up your sleeve because you can honestly feel that you have actually saved a life in these desperate cases.

EDGAR ALPHONSO HINES, M. D.

Throughout South Carolina, indeed throughout the South, the news of the death of Dr. E. A. Hines brought genuine sorrow. For, while Dr. Hines lived at Seneca, in a very real sense he belonged to South Carolina. He served for thirty-three years as Secretary and Treasurer of the South Carolina Medical Society and was Editor of The Journal. In these capacities he rendered an outstanding service to the Society and to the State. And that his influence and work extended beyond the State is evidenced in the fact that he served for a time as President of the Southern Sanitary Association and as Section Chairman of the International Hygiene School at Buffalo, New York. His articles on child health attracted attention far beyond the borders of our state. In his passing the state has lost a beloved physician and a distinguished public servant.

However, my thought of Dr. Hines is more from the personal than from the professional or public standpoint. The message that Dr. Hines had died brought to me the feeling of deepest sorrow and of inestimable personal loss. He was my friend and adviser. During the past two years my association with him gave me the privilege of knowing him intimately. We made many trips together in connection with the business of the Medical Society. His fellowship was always so gracious and inspiring that I looked forward with ever increasing interest and pleasure to our next trip. Ne never failed, unless providentially hindered, to keep an appointment—and was never late. He knew and loved and always spoke in most complimentary terms of the members of the South Carolina medical fraternity. It is but natural, therefore, that I and all of us loved him.

The two days preceding his death I spent with Dr. Hines, traveling over the State in the interest of the preparedness program. I confess it was with some hesitation that I had asked him to undertake the Chairmanship of the Preparedness Program, for I realized it would be a heavy drain upon his reserve strength. But, from his experience in a like service prior to the first World War, I knew of no man so well qualified for the task. He entered upon the new duties with great zeal and enthusiasm, and with the burning desire that the work might be finished by January 1. But though he was not permitted to finish it, so well has he done the initial and most difficult part of the work that it will be comparatively easy for others to carry it through to completion. By our zeal in pushing forward all the interests that were so dear to his heart we shall show our appreciation of and devotion to him.

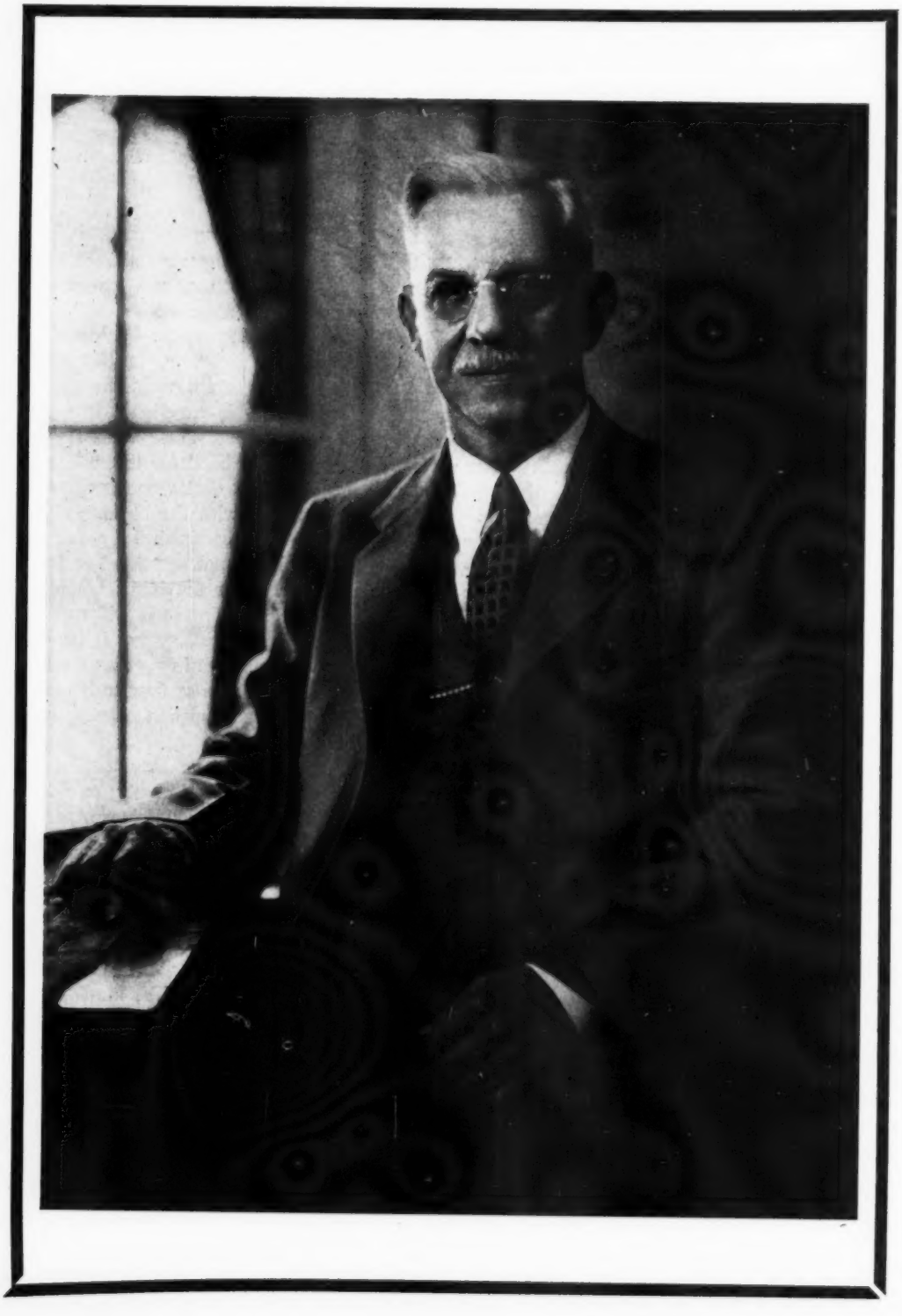
As an individual and as President of the Medical Association, I shall greatly miss him. Big of heart, wise in counsel, zealous in service, his life was an inspiration and a blessing to me. His spirit seemed to be,

"Nor love thy life, nor hate; but what thou liv'st
Live well, how long or short permit to heaven."

W. L. PRESSLY, M. D.,
President, South Carolina
Medical Association.

DR. HARTZOG, OLAR, HURT

Dr. Leighton A. Hartzog, of Olar, was carried to the Tri-County hospital Dec. 10 afternoon after receiving injuries in an automobile accident. He was rushed to the hospital and X-ray pictures showed several broken ribs.



EDGAR A. HINES

Coming home after a full day of many sided duties, Edgar Hines lay down for a brief release from his constant activities, and early on the morning of November the twenty-seventh passed quietly from sleep to death. At the age of seventy-three, the end came for him in the way for which he had hoped—while still active and still busy "in harness."

It is unlikely that there is a physician in South Carolina who did not know Dr. Hines by sight or by reputation. So well known and so highly appreciated generally were his activities and his services to medicine in his own State and to American medicine in general, that it is scarcely necessary to recount them here. A few years ago a special issue of this Journal was devoted to an account of his career, and his varied, consistent and fruitful activities were set down to remind us of his accomplishments and of his tremendous contribution to the making of organized medicine in South Carolina.

As Secretary of the South Carolina Medical Association for over thirty years and as Editor of this Journal for practically the same length of time, Dr. Hines was in constant demand as the authority on all things pertaining to our state organization. He was a faithful attendant and active participant wherever medical men met, and as delegate to the national Association, he brought honor to himself, to his State and to the physicians whom he represented.

As a man consistently conscientious and industrious, he kept abreast of all the great advances in medicine, and availed himself of every opportunity to further medical education. No list of those associated with any progressive medical movement in South Carolina for the past fifty years would be complete without his name.

Always genial and courteous, he derived much pleasure from lending his valuable aid to many endeavors outside of his technical fields. Pride in the accomplishments of his associates was a part of Dr. Hines nature and no better example than his own could be offered to stimulate these same associates to effort and to success.

The medical circle of our state shows a great gap which will not be easily filled, for one of our largest medical figures has passed from his place.

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DECEMBER 1940

In order to fill the gap in the organization of the Association created by the death of Dr. Hines, Council met in Columbia on December 3 and made temporary arrangements pending the regular meeting of the Association in April of 1941. Dr. Julian Price of Florence was requested to assume the duties of Secretary-Treasurer and Dr. J. I. Waring of Charleston was asked to carry on the publication of the Journal. As Dr. Hines was a delegate to the American Medical Association it was necessary to fill his place because of the possibility of a special meeting being called before the regular election takes place in April. Dr. T. A. Pitts of Columbia was asked to assume this office temporarily and the president, Dr. W. L. Pressly of Due West, to carry on the activities of the Medical Preparedness program in South Carolina which had been under the direction of Dr. Hines. These new acting officers have entered into their duties and the business of the Association goes on under this new arrangement.

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SURGERY

WM. H. PRIOLEAU, M.D., F.A.C.S., CHARLESTON, S. C

SODIUM CHLORIDE METABOLISM OF SURGICAL PATIENTS

Contributed by
Edward F. Parker, M. D., Charleston, S. C.

In recent years, an intensive study has been made of fluid, electrolyte and colloid requirements of the surgical patient. These studies have indeed enlarged considerably our knowledge of these most important factors in the intelligent care of the surgical patient. In the October, 1940 issue of the Annals of Surgery, there is an excellent symposium on the subject. The article by Maddock and Coller (Annals of Surgery, 112, 520, 1940) in this symposium, has been summarized in the paragraphs below:

Three conditions may alter materially from normal the sodium chloride metabolism of surgical patients: (1) Low salt intake due to inability to take anything by mouth; (2) frequent abnormal losses of fluid containing salt; and (3) a tendency toward salt and water retention in seriously ill patients, especially in the presence of excessive salt intake.

Sodium chloride has two vital functions: (1) It helps to maintain the acid-base balance of the body; and (2) it is largely responsible for the total osmotic pressure of the extracellular fluids.

The normal balance of sodium chloride is maintained by a daily intake of from 1 to 2 Gms. in the food itself, and from 2 to 8 Gms. added in the process of cooking and in the use of the salt shaker at the table. In addition to this oral intake, from 8 to 10 liters of salt-containing solution, made up of gastric juice, bile, pancreatic juice, and succus entericus, are poured into the upper part of the intestinal tract daily. About 95 per cent of this sodium chloride is absorbed in the lower intestinal tract, and the daily salt loss in the stool is normally less than 0.5 Gm. a day. Important amounts of sodium chloride are excreted in two ways: the sweat glands and kidneys. With insensible perspiration, the loss of salt is insignificant. The kidneys normally maintain the salt balance by excreting excess intake, and the amount excreted usually amounts to 3 to 8 Gms of sodium chloride each day.

Thus, in providing salt to patients taking nothing by mouth, therefore requiring parenteral fluids, and in the absence of abnormal losses of salt, about 4 to 5 Gms should be administered each day in the form of half a liter of Ringer's solution or normal saline. Additional fluids should be given in the form of a 5% glucose solution.

Abnormal losses of salt occur as a result of vomiting, diarrhoea, drainage from intestinal, pancreatic or biliary fistulae, profuse serous or wound secretions, and prolonged sweating. In all cases when the loss of salt-containing fluid can be measured, it has been found satisfactory to replace that volume lost by an equal amount of normal saline or Ringer's solution, given by mouth or parenterally. If such measurement of the loss is not possible, after determination of the plasma chlorides, it has been found satisfactory to restore normal balance, to give the patient 0.5 Gm. of sodium chloride per kilogram (2.2 lbs.) of body weight for each 100 mg. that the plasma chloride level needs to be raised to reach the normal (560 mg. per cent).

Edema in surgical patients has been noted and discussed by many authors, and it is apparently related to salt retention in the presence hypoproteinemia. Surgical patients most likely to exhibit edema are those with malnutrition, sepsis, renal drainage, acute or chronic sepsis, and severe injuries such as extensive burns, all of which conditions are frequently associated with hypoproteinemia. There is a consequent lowered osmotic pressure of the plasma, associated with salt and water retention by the body, resulting in edema. Hence, excessive salt administration must be carefully guarded against, as it may lead to death.

In order to carry out proper treatment in seriously ill surgical patients, one must have a knowledge of the chemistry involved. This applies especially to patients requiring parenteral fluids. Fluids and electrolytes administered must be chosen according to the needs of the individual case.

EYE, EAR, NOSE AND THROAT

J. F. TOWNSEND M.D., F.A.C.S., CHARLESTON, S. C

PLUMMER-VINSON SYNDROME

Review of an article by John D. Kernan, M. D., Arch. Otolaryngology, 1940, *pg.* 662

In the presence of ulceration and more or less manifestations of pathology of the mucosa in the mouth, one may overlook the more serious disease that has received a clinical classification under the nomenclature of the Plummer-Vinson Syndrome. Dr. Kernan wrote on the Plummer-Vinson Syndrome in the esophagus. Vinson describes it as a hysterical dysphagia but this classification is not agreed in by Cordray and others who have found a web formation, not only at the opening of the esophagus but elsewhere also. This web may be formed in rats by severe anemia experimentally produced. There are thus two opinions of the syndrome; one that it has a neurotic base without an organic lesion and the other that organic lesions are always present. However, it seems agreed, that once the dysphagia is established the other symptoms are caused by the partial starvation; such was the case in a patient I recently saw.

The list of symptoms is fairly constant dysphagia, anemia, glossitis, splenomegaly, achlorhydria, painful lesion at the mouth of the esophagus, non-malignant ulcers and fissures at the angle of the mouth, spasmodic dysphagia and blood changes in which we find that "The anemia is hypochromic, the red cells varying from 2,500,000 to 4,000,000 per cubic millimeter of blood and the value for hemoglobin from 25 per cent to 60 per cent. Achlorhydria precedes the anemia and may remain after the anemia is cured." A hypochromic microcytic anemia was present in my case, the hemoglobin being 28%, with ulcers in the pharynx and ulcers at the angles of the mouth. I am not trying to report my case but it was interesting to see a patient so sick with this disease, who was cured mostly by large doses or iron—5.4 Gm. daily.

To return to Dr. Kernan's article. "In reading the many papers which have been written on this syndrome one gains the impression that the disease presents itself in many forms, now this and now that symptom being prominent. Each author naturally emphasizes the aspect which has come most strongly to his attention. Thus by some the anemia is carefully described and the dysphagia scarcely mentioned. Others deal with certain gastric symptoms, such as achlorhydria with accompanying anemia, and make little mention of oral and pharyngeal manifestations. Still others consider that the dysphagia is primary, all the other symptoms being secondary developments. One must conclude that the syndrome scarcely ever presents itself as a whole. Only one feature may be developed and that slightly."

Blankenstein in 1893 found the condition was relieved by the passage of sounds.

Clark in 1911 and Mosher in 1927 emphasized the webs in the esophagus.

Vinson in 1922 claimed that the anemia and the glossitis were due to dietary deficiency caused by the dysphagia.

Kelly in 1919 gave a complete description. Among other symptoms he mentioned that the mucosa of the mouth was pale and waxy and that the tongue was smooth and devoid of papillae. Fissures at the angle of the mouth were noted in some and esophageal changes, such as esophageal webs and spasms were also noted in many cases. A hyperesthetic state of the sensory nerve plexus of Meissner may, by stimulation of the motor plexus of Auer-

bach, cause a spasm. "The spasm, once established, may tend to be perpetuated as a nerve cell habit." All patients are women.

Paterson in 1919 stressed the spasmodic dysphagia.

Hurst, 1928, did not agree with the hysterical nor the spasmodic cause but held the primary cause to be an achalasia of the pharyngoesophageal sphincter of Negus, exactly analogous to achalasia of the cardiac sphincter which was erroneously described as cardiac spasm. A discussion of the components of the syndrome is of interest. These are: "(1) the anemia, (2) the dysphagia, (3) the glossitis, (4) the achlorhydria, (5) the pathologic picture and (6) the possibilities of carcinoma."

The fragility of the red cells is increased. "The blood picture is characteristic; there is a diminished value for hemoglobin in proportion to the diminished erythrocyte count, and the color index is thus always low. The average diameter of the blood cells is below normal. Pathologic erythrocytes are very rare."

Dysphagia has been variously ascribed to ulcers, fissures and webs in the esophagus or to changes in the sensory nerves by mucosal atrophy.

Glossitis appears as an atrophy of the lingual papillae, the tongue appearing smooth, red and painful.

Achlorhydria finds significance in that lack of hydrochloric acid in the gastric juice interferes with absorption of iron from the food: hence the anemia. It is significant that with the iron treatment recovery is quicker if hydrochloric acid is also given.

Suzman discussed the pathology and in part said that, "the underlying cause is iron deficiency, caused by some gastric abnormality."

Laub claimed a relation between the Plummer-Vinson Syndrome and glandular disturbances.

I found that carbonate of iron in a daily dose of 5.4 gm. with liver extract and a food with higher Vitamin B and C content were helpful.

Pathological Conference, Medical College of the State of South Carolina

KENNETH M. LYNCH, M. D., PROFESSOR OF PATHOLOGY

November 1, 1940

Case of Dr. Henry C. Robertson, Jr.

ABSTRACT NO. 423 (69172)

Student S. H. Sandifer (presenting):

History: A 34 year old white married woman admitted on 8-23-40 with chief complaint of headache. She was apparently in good health until two nights before admission when she developed a mild occipital headache. She was able to go to sleep during the night, but when she awakened in the morning headache had increased in severity. She went to work but headache steadily increased and around noon on 8-22-40 her right eye became noticeably swollen. Vomited at 3 P. M. on same day and twice subsequently. Also became aware of some soreness and stiffness of her neck which progressively increased. Confined to bed with aggravation of all symptoms on the day of admission. No chills. Fever mild if any. One member of family stated that she complained of sore throat 2 days before admission, but patient denied this. She has had mild visual disturbances for the past 3 months consisting of the sensation of a film momentarily passing across her eyes. No blindness or limitation of vision since onset of P. I.

Physical: T—101.8 P—88 R—24 BP—102/80.

Examination revealed an acutely ill, pale white woman. Skin warm, dry, and rather inelastic. No rash. Lids very edematous and there appeared to be proptosis of the right eye. Pupils very small and reacted to light. Eyes and nose neg. Tongue protruded in midline. The teeth were carious. Mild injection of the pharynx. Superficial lymph glands not enlarged. The neck was stiff with marked limitation of motion. The chest was symmetrical and respirations rather slow and easy. Lungs resonant throughout with no rales. PMI was not seen and heart not enlarged to percussion. Rate slow in consideration of general condition; rhythm regular; no murmurs. Considerable voluntary resistance of abdomen, but no tenderness. Liver and spleen not felt. Old appendectomy scar. Muscle tone good. No pathological reflexes, but somewhat hyperactive bilaterally. Kernig questionably positive.

Laboratory: Urinalysis 8-25-40 negative.

Blood 8-24-40
Hb. 12.8 gms.
WBC 9,850
Polys. 93%
Smears rt. and lt. eyes, 8-24-40.
No gram neg. intracellular diplococci found.

Spinal Fluid 8-23-40
Pressure 160mm., free dynamics, fluid turbid, no blood, 2161 cells per cu. mm., all polys, sugar three plus, globulin one plus.
8-24-40 — Pressure 460 mm. Gram. neg. intracellular diplococci found smear. Colloidal Gold 0001122100.

8-24-40 Blood and spinal fluid culture — H. staphylococcus aureus present.

Course: On 8-24-40 patient delirious and irrational. Eyes very edematous with sanguineous discharge from rt. eye. 60 c. c. of anti-meningococcic serum given intravenously on 8-24-40 and 9,000 units on 8-25-40. Patient became cyanotic with labored respirations and terminal elevation of temp. to 106. Expired 8-25-40 at 4:43 A. M.

Doctor Robert Wilson, Jr. (Conducting): Mr. Cromer, will you give us your analysis of this case?

Student Cromer: When you have a patient with rigidity of the neck, vomiting, headache and a positive Kernig, I think, you are justified in making a diagnosis of meningitis. A lumbar puncture is then necessary to confirm or disprove your diagnosis and such a procedure was performed in this case. The results are rather confusing. The presence of hemolytic staphylococcus aureus may merely represent a contaminant or perhaps indicate a secondary invader, which is not unlikely. Cavernous sinus thrombosis is not an uncommon sequel of meningitis and the proptosis strongly suggests such a possibility. There is no definite way to rule out a brain abscess, particularly if it were located in a silent area of the brain and thus produced no localizing signs. The pathogenesis of the meningitis is rather difficult to trace. The infection might have arisen from an otitis, mastoiditis, sinusitis, panophthalmitis, or orbital osteomyelitis.

Doctor Wilson: Why do you think there was cavernous sinus thrombosis?

Student Cromer: I think the eye findings in this case are quite characteristic.

Doctor Wilson: What vessels make up the cavernous sinus?

Student Cromer: The internal carotid artery is on the medial wall. The sinus receives blood from the ophthalmic veins, the superior ophthalmic vein also serving as a channel of communication for the angular vein. It also communicates with the transverse sinus, internal jugular vein, and the pterygoid venous plexus.

Doctor Wilson: What nerves are in close relationship to the cavernous sinus?

Student Cromer: The abducent nerve runs through it and the oculomotor, trochlear, and divisions of the trigeminal are along its wall. We would expect some type of extra-ocular palsy or an internal strabismus from injury to the 6th nerve.

Doctor Wilson: Why couldn't this be a lateral sinus thrombosis?

Student Cromer: Normal spinal fluid dynamics rule out any involvement of the lateral sinus.

Doctor Wilson: How often do you have a primary meningitis complicated by a staphylococcus infection?

Student Cromer: I do not believe it happens very often.

Doctor Wilson: What is the usual white blood count in meningitis?

Student Cromer: It is usually around 20,000 and is unusually low in this case which probably indicates low resistance.

Doctor Wilson: Do you think the administration of meningococcic antisera was justified?

Student Cromer: Yes, I do.

Doctor Wilson: What do you think was the cause of death?

Student Cromer: I believe she died from respiratory failure as a result of increased intracranial pressure with interference of the function of the medulla.

Doctor Wilson: Mr. LaRoche, do you agree with Mr. Cromer?

Student LaRoche: I agree with Mr. Cromer in all respects, except that I am not convinced that there was thrombosis of the cavernous sinus. The meningeal infection could have spread along the optic nerves and caused diffuse inflammatory involvement of the eye. I cannot adequately explain the lack of leucocytosis and the absence of chill or rash.

Doctor Wilson: Is this patient's course unusually short for meningococcic meningitis?

Student LaRoche: No, a fatal outcome may be very rapid in this disease.

Doctor Wilson: Do you think it necessary to have a history of a respiratory infection?

Student LaRoche: Yes. I believe she had a pharyngitis and probably forgot about it or was too ill to remember.

Doctor Wilson: If we assume this is not a meningococcus but a staphylococcus meningitis what do you think was the portal of entry?

Student LaRoche: From the standpoint of cavernous sinus thrombosis with a resultant suppurative meningitis, I think an infected pimple draining into the facial or angular vein would be the most likely possibility. The infection may also have gained entrance through the naso-pharynx. There are many causes of proptosis but I believe that bilateral involvement is most likely to be caused by cavernous sinus thrombosis which resulted from the spread of infection by the routes I have mentioned.

Doctor Wilson: The hemolytic staphylococcus aureus is not a common inhabitant or invader of the naso-pharynx.

Student LaRoche: An infected pimple or the

naso-pharynx are still the most likely possibilities in my mind.

Doctor Wilson: What other pathological changes would you expect to find in a patient with staphylococcic septicemia?

Student LaRoche: Multiple abscess formation in the viscera.

Doctor Prioleau: I wish to support the student's statement concerning cavernous sinus thrombosis. I have seen a case which followed a thrombophlebitis of the ophthalmic vein which presented findings almost identical with the ones we have here. Although extra-ocular palsies furnish important diagnostic aid in this condition, I do not believe they can be properly evaluated in such an ill patient.

Doctor Kredel: I think the report of the presence of gram-negative diplococci is incorrect. This appears to me to be the picture of sphenoidal sinusitis and osteomyelitis with cavernous sinus thrombosis.

Doctor Lynch (demonstrating brain, sphenoid and cavernous sinuses): This woman had an acute sphenoidal sinusitis. There was pus in the air cells and a suppurative osteomyelitis with extension to the cavernous sinuses and bilateral thrombosis. The infection then spread to the meninges and here you see a purulent basilar meningitis. The findings of gram negative diplococci was not altogether conclusive in the mind of the examiner and the subsequent events proved this finding to be erroneous. In addition there were acute miliary abscesses scattered through the lungs. No doubt there would have been widely desseminated abscesses in the other organs if the patient had lived longer.

WOMAN'S AUXILIARY

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JANE TODD CRAWFORD FUND

In behalf of the memory of Jane Todd Crawford, I bring Greetings to the Woman's Auxiliary of the South Carolina Medical Association! What a privilege we have to keep before us as our ideal this heroic woman who was willing, if necessary, to give her life for suffering womanhood.

The Auxiliary to the Medical Association has presented two beds in memory of Jane Todd Crawford that are now in use in hospitals in Oconee and Abbeville. These beds are appropriately marked and information is at hand telling of the life of the woman in whose memory they were given, as well as her benefactor, whose skill and courage made possible her recovery. And, as we think of that remarkable surgeon we pause to thank the Great Psysician who guided Jane Todd Crawford and Dr. Ephriam McDowell to endure the great trial which has meant complete restoration to health for thousands of women since that memorable day of December 13, 1809.

At the recent Executive Board Meeting of the State Auxiliary, a ruling was made that each member be assessed twenty-five cents per year to go to the Jane Todd Crawford Fund. This seems such a small amount, but with your cooperation who knows but what we might reach our goal for this year, which is to place two complete hospital beds in one of our smaller hospitals of the State.

Please make your contribution promptly to your local Auxiliary so that when our Convention meets in Greenville in April, we will

be able to report our goal of two beds attained.

Margaret M. Grimball (Mrs. I. H.)
S. C. State Chairman
Jane Todd Crawford Fund.

STUDENT LOAN FUND

1940 marks the eighth year of the Student Loan Fund of the Woman's Auxiliary to the South Carolina Medical Association. We are very proud of the progress made during these years. One student has been helped but had to give up the study of medicine for financial reasons. He paid in full his loan. 1939-1940 three men were graduated from the Medical College of Charleston, two in the upper third of the class and one in the lower third, also one of them tied for second place in the class. We ask each Auxiliary to continue the splendid cooperation they have shared with us in the past.

Mrs. L. O. Mauldin, Chairman
Mrs. T. A. Pitts, Co-Chairman.

REPORT OF TREASURER OF STUDENT LOAN FUND

April 11, 1939—Balance	$1476.14
Total Receipts	338.80
Total Disbursements	764.58
Balance on Checking Account	300.36
Balance on Savings Account	750.00
Total Balance	1050.36

For your information:
Itemized contributions

Laurens County	$ 8.50
Abbeville County	8.00
Ridge Society	20.00
York County	25.00
Spartanburg County	25.00
Pickens County	15.00
Oconee County	3.00
Greenville County	142.90
Richland County	86.00
Mrs. Holcomb	5.00
Total	$338.80

Disbursements:

To 3 students at Medical College	$750.00
Auditing	5.00
Stamps, typing, etc.	9.58
Total	$764.58

Mrs. J. L. Bundy, Treasurer.

THE FOLLOWING RULES FOR STUDENT LOAN FUND WERE ADOPTED

1. That the Student Loan Fund be used for students attending South Carolina Medical College as long as it is a grade *"A"* school.

2. That applicants Junior and Senior year of college be fully investigated as to scholarship and his scholarship be of high standing at least *"C"* grades.

3. Only resident sons and daughters of physicians who are or have been members of South Carolina Medical Association are eligible for benefit of this fund.

4. A detailed application on a form supplied by the Student Load Fund Committee is required of all who desire loans. Such application must be accompanied by two letters of recommendation as to character and integrity, by records of preparatory work, and by a physician's statement of applicant's sound health.

5. The maximum loan allowed to one student in one year is $250.00. A note, satisfactorily endorsed, must be given for each separate amount received. $1,000.00 to be the maximum loan to one student, and not establish an additional scholarship until the $1,000.00 completion of the one before.

6. No interest charged.

7. Repayment shall be made at rate of ten dollars ($10.00) per month, beginning one year from date of graduation or completion of professional training. Any borrower leaving college before graduation for other than providential causes, shall begin repayment in three months after date of leaving.

8. The College shall report student's progress to the Chairman of the Loan Fund Committee at the end of each semester. Loan may be discontinued at any time, to any student

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whose work or conduct becomes unsatisfactory.

9. Every borrower of this Fund shall keep the Chairman of the Committee informed of any changes in address, so long as any part of his indebtedness to the Fund remains unpaid.

10. All applications for loan must be in hand of Chairman of Loan Fund by March 1st.

MRS. C. M. TRIPP HOSTESS TO PICKENS COUNTY MEDICAL AUXILIARY

Wednesday morning, October 16, the Pickens County Medical Auxiliary gathered at the home of Mrs. C. M. Tripp for their meeting.

Mrs. P. E. Swords, President, presided, and Mrs. W. B. Furman led the devotional using as her topic, "The Beautiful" and read Chapter 13 from 1st Corinthians followed by prayer. In the absence of the Secretary, Mrs. J. W. Potts, called the roll with nine members answering.

Mrs. J. W. Kitchen reported on the Mid-year Executive Board meeting of the Woman's Auxiliary to the South Carolina Medical Association which convened in Columbia at the Columbia Hotel in the Crystal Room, October 15. Those attending were: Mrs. J. W. Kitchins, Liberty, State Treasurer; Mrs. P. E. Swords, Liberty, County President and Mrs. W. B. Furman, Councilor District No. 4.

Mrs. L. R. Poole introduced Dr. J. W. Potts who gave a most interesting and helpful talk on tuberculosis which was greatly appreciated. The Auxiliary welcomed Mrs. L. W. Luttrell of Pickens as a new member.

During the social hour Mrs. Tripp served her guests a delicious luncheon.

Mrs. W. B. Furman, Chairman
Publicity Pickens County

NOVEMBER MEETING WOMAN'S AUXILIARY TO THE COLUMBIA MEDICAL SOCIETY

The Woman's Auxiliary to the Columbia Medical Society met on November 5th at the home of Mrs. Richard B. McNulty on Heyward Street. This was the first meeting of the year. Sixty-eight were present.

Mrs. O. B. Mayer, President, presided. Plans and projects for the year were set forth and committee reports were heard. A report made from the Auxiliary Medical Supplies Committee for "Bundles for Britain" revealed the fact that $350 had been raised and about 40 instruments sent. Mrs. H. L. Timmons, President Woman's Auxiliary to the S. C. Medical Association, gave a short talk on "The Bulletin." We were then invited into the dining room for tea, sandwiches and cakes. An artistic arrangement of large yellow chrysanthemums centered the lace covered table.

Assistant hostesses were Mrs. W. C. Abel, Mrs. Trevor Abel, Mrs. Jenkins Mikell, Mrs. P. V. Mikell, Mrs. Floyd Rodgers, Mrs. Malcolm Mosteller, Mrs. M. B. Cheatham, Mrs. S. E. Harmon, and Mrs. George Bunch.

Mrs. Allen Izard Josey,
Publicity Chairman.

THE NATIONAL AUXILIARY BULLETIN

For the benefit of those who are unfamiliar with the Bulletin of the Woman's Auxiliary to the American Medical Association or who perhaps failed to subscribe for this splendid store of information, I wish to say that Mrs. H. E. Christenberry, Circulation Manager of the Bulletin, confers quite a favor on members of the various auxiliaries when she solicits subscriptions to the official organ of the Woman's Auxiliary to the A. M. A.

Every member as well as President of each Auxiliary will feel, I'm sure, that the Bulletin is indispensible. It is most complete and helpful to both active and inactive members. Subscriptions should be sent to Mrs. H. E. Christenberry, Highland Drive, Knoxville, Tennessee. May I urge all Auxiliary members to avail themselves of this fine opportunity.

Through the Bulletin attention is called to the American Medical Association Radio Program for 1940-41 entitled "Doctors at Work" and will consist of thirty minute programs interpreting the services of medicine or one

of its specialties to the patient. The first broadcast was held during the week beginning November 4th over the National Broadcasting Company network. The schedule for others will be announced from time to time.

Mrs. J. L. Sanders,
State Publicity Secretary.

REPORT SOUTHERN MEDICAL ASSOCIATION AUXILIARY MEETING

The Seventeenth Annual Meeting of the Woman's Auxiliary to the Southern Medical Association was held at Louisville, Kentucky, November 12-15. It was a most successful meeting and especially so to South Carolina, as our own Mrs. Charles P. Corn of Greenville, was President and presided at all meetings. She presided in her own charming and most gracious manner and has done a splendid work this year with fine cooperation from all the states in the Southern Auxiliary. We are sure she was much appreciated as was evidenced by the many lovely flowers presented to her while she was in Louisville.

The meeting opened with an Executive Board breakfast at which twenty-seven board members representing fourteen states were present. The table was attractively decorated by Mrs. Arthur T. McCormack of Louisville at both ends of which was a replica of the home of Jane Todd Crawford and down the length of the table was the trail over which she rode horseback to the home of Dr. Ephraim McDowell. Being in Kentucky this was most appropriate and also the Jane Todd Crawford Memorial Fund is one of the most important projects of the Southern Auxiliary.

Immediately following breakfast the first session of the Auxiliary was held on the roof garden. Greetings were heard from Mrs. Richard T. Hudson, President Woman's Auxiliary to the Jefferson County Medical Society and a General Chairman; Mrs. Philip E. Blackersby a General Chairman; greetings from the Woman's Auxiliary to the Jefferson County Medical Society and Mrs. John M. Blades, President Woman's Auxiliary to the Kentucky State Medical Association; also greetings from the Advisory Committee of the Southern Medical Association, Dr. Arthur T. McCormack, Louisville; Dr. Vincent W. Archer, University of Virginia and Mr. C. P. Loranz, Secretary-Manager of the Southern. Mrs. V. E. Holcombe, President Woman's Auxiliary to the American Medical Association gave an interesting address telling of some experiences in her travels about the country visiting various auxiliaries and spoke especially on "Enlarging the Circulation of the National Auxiliary Bulletin" the official publication of the National Auxiliary and a direct channel of communication between National and the County Auxiliary. The subscription goal this year is one fourth of the membership or 6,000 subscriptions. Let South Carolina do her part and begin now sending in subscriptions as it will be of great value and much interest to each member. The last thing on the morning program was a beautiful Memorial service presented by Mrs. J. Ullman Reaves of Alabama in memory of sixty of our members who have passed on with special tribute to the late Mrs. Seale Harris of Alabama, founder of the Woman's Auxiliary to the Southern Medical Association. Tribute was also paid to Dr. Quitman Newell of St. Louis, President-elect of the Southern Medical Association who passed away a week before the meeting.

The Annual Luncheon, a lovely affair, was held in the Crystal Ball Room of the Brown Hotel. Immediately following "A Pageant of Pioneer Kentucky" was presented, the cast including many doctors, their wives and children, giving us a panoramic view of the lives of strong and courageous men and women who braved the perils of the wilderness to build their homes in this alluring garden spot of the world. It was most interesting and beautifully done.

The next morning the business meeting of the Auxiliary was held with reports of the various officers, committees and Councillors, representing the various states. The reports from the states were most interesting and showed what other states are doing along the same interests that we have, such as Jane Todd Crawford Memorial Fund, Student Loan Funds, Research and Romance of Medicine,

Historical Biographies, Doctor's Day Observance, Health Education and many local projects. Officers for the ensuing year were then elected as follows: President, Mrs. M. Pinson Neal, Mo.; President-elect, Mrs. J. U. Reaves, Alabama; 1st Vice President, Mrs. W. T. Wootten, Ark.; 2nd Vice President, Mrs. Philip E. Blackersby, Ky.; Secretary, Mrs. Floyd Kirby, Texas; Treasurer, Mrs. Harvey F. Garrison, Miss.; Historian, Mrs. W. A. Knoll, La.; Parliamentarian, Mrs. B. Y. Alvis, Mo.; Corresponding Secretary, Mrs. Harry M. Gilkey, Mo. These officers were installed by Mrs. Arthur T. McCormack and after Mrs. Corn presented the gavel to the new president, Mrs. M. Pinson Neal, Mrs. McCormack very graciously received her into the distinguished group of Past Presidents. The way the whole meeting was conducted showed that our President had been working and planning for months in advance and was well prepared for her job. South Carolina congratulates her.

The Louisville women were perfect hostesses—they saw to it that we had something to do every minute. One afternoon we had a lovely tea at the Womens Club, another day they planned a motor trip to Bardstown, the home of Stephen Foster, and sightseeing trips around the city, to Churchill Downs, Speed Museum and Lemon's Galleries. Thursday the Auxiliary to the Jefferson County Medical Association gave a luncheon for the visiting ladies. Then of course there was the usual reception for the President and the ball afterwards.

Louisville is an interesting city with a population of 375,000. It is noted for its many beautiful parks and lovely homes, fine shade trees and wide streets. There is no evidence to the visitor of the terrific damage done by the floods a few years ago. Among the educational institutions located in Louisville are the Southern Baptist Theological Seminary, the Presbyterian Theological Seminary and the University of Louisville. The Medical School was established in 1836 and was the first medical training center west of the Alleghanys.

NEWS ITEMS

Dr. William H. Speissegger of Charleston was elevated to the master's chair of Landmark Lodge No. 76, Ancient Free Masons on December 4, 1940.

The Pee Dee Medical Association met at Florence on December 4th for its 92nd annual gathering. The program included a visit to the Crippled Children's Home, where Dr. A. T. Moore of Columbia demonstrated orthopedic cases.

After dinner at the Florence Hotel, Dr. Walter R. Mead of Florence spoke on "Prevention and Treatment of Infectious Diseases in Children," and Dr. Paul Barnes of Bennettsville gave a paper on "The Eyes Have It."

About seventy-five physicians attended the meeting.

Dr. K. L. Able was elected mayor of Leesville on December 3, 1940.

The Annual (21st) New Year Meeting of the Marlboro County Medical Society will be held at the Bennettsville Country Club on Thursday, January 9th, 1941. The meeting will begin with dinner at 6 P. M.

At dinner the President, President-Elect, and Secretary of the State Medical Association and the Editor of the Journal will be presented and a few remarks will be heard from each.

Immediately after dinner, in the same hall, the scientific program will be presented as follows:

"Prolonged Labor Due to Uterine Dystocia"—Dr. Brodie C. Nalle, Charlotte, N. C.

"Acute Infectious Mononucleosis"—Dr. O. B. Mayer, Columbia, S. C.

"Treatment of Diarrhea and Dehydration" Motion Pictures — Dr. J. Buren Sidbury, Wilmington, N. C.

The profession of the State is cordially invited to attend.

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*Deceased.

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	Orthopedic Surgery	Dr. James C. McLeod, Florence, S. C.
	Ophthalmology	Dr. Simons Lucas, Florence, S. C.
	Radiology	Dr. P. D. Hay, Florence, S. C.
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District of Chesterfield, Darlington, Dillon and Marlboro Counties

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CRANIOPHARYNGIOMA — A CASE REPORT, BY W. D. HAZELHURST AND W. H. KELLEY. CHARLESTON. SOUTH. MED. & SURG. 102:628, NOV., 1940.

The symptoms and signs of this tumor are those of compression of the hypothalamus, the pituitary gland and adjacent structures. This case was too far advanced for expectation of relief from surgery or X-ray.

DISSEMINATED TUBERCULOSIS OF THE SKELETON, BY W. H. KELLEY AND S. SAILER. CHARLESTON. AM. REV. OF TUBERC. 42:691, NOV., 1940.

Report of a rare type of tuberculosis in a young Negro man. Evidence of primary pulmonary infection was not found. Areas of destruction appeared in many bones and tubercle bacilli were demonstrated.

FRACTURE SENSE AND SENSIBILITIES, BY J. W. WHITE. GREENVILLE. SOUTH. MED. & SURG. 102:631, NOV., 1940.

The author covers many phases of fractures. Early energetic treatment is emphasized. Early active motion is recommended and passive motion and open reduction are minimized.

PANCREATITIS: AN ANALYSIS OF TYPES AND CAUSES, BY K. M. LYNCH. CHARLESTON. ANN. INT. MED. 14:628, OCT., 1940.

Eighteen cases reviewed from the pathologist's standpoint. Not one of the cases was diagnosed clinically. Vascular occlusion and infection appear to be likely causes of the majority of cases, of which many may be transient, with recovery and scarring.

PROGRESS IN KNOWLEDGE AND CONTROL OF CANCER, BY K. M. LYNCH. CHARLESTON. J. MED. ASSN. GA. 29:521, NOV., 1940.

Dr. Lynch outlines the development of our knowledge of cancer from earliest times and points out that while cancer is apparently increasing, it is because we live longer. Modern treatment offers better and better outlook to the cancerous patient.

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VOLUME XXXVI

January to December, 1940

Compiled by Annabelle Furman and J. I. Waring
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BY GEORGE D. JOHNSON, M. D., SPARTANBURG, S. C.

INTRAVENOUS THERAPY IN THE TREATMENT OF ACUTE HEART FAILURE AND CARDIAC ASTHMA
BY JAMES T. QUATTLEBAUM, M. D., COLUMBIA, S. C.

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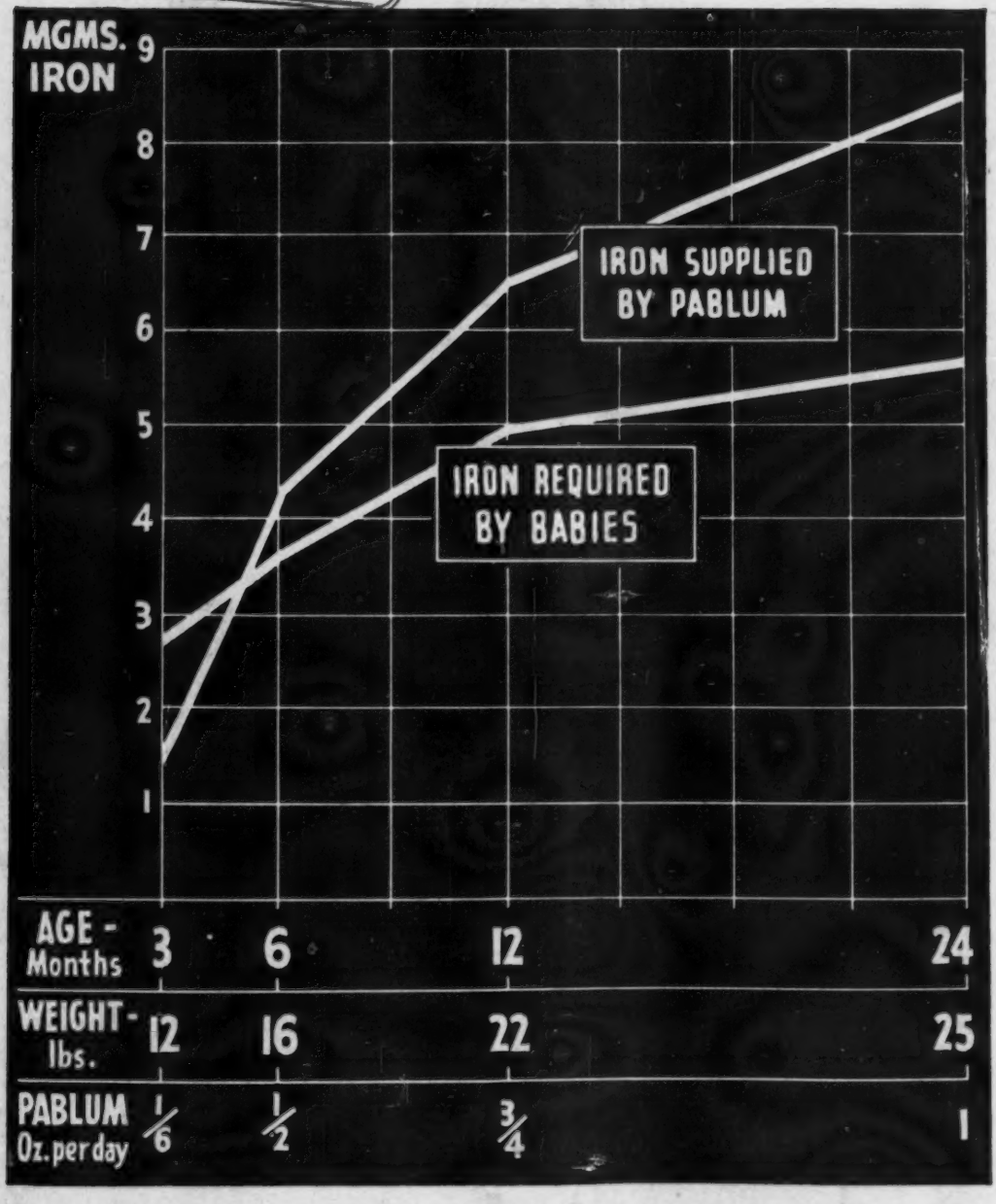

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